



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2022-1244; Project Identifier MCAI-2022-00872-E; Amendment 39-22361; AD 2023-04-14]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce Deutschland Ltd & Co KG (Type Certificate previously held by Rolls-Royce plc) Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is superseding Airworthiness Directive (AD) 2020-12-01, which applied to certain Rolls-Royce Deutschland Ltd. & Co KG (RRD) Trent XWB-75, Trent XWB-79, Trent XWB-79B, and Trent XWB-84 model turbofan engines.

AD 2020-12-01 required initial and repetitive inspections of the low pressure compressor (LPC) outlet guide vane (OGV) outer mount ring assembly and, depending on the results of the inspections, possible replacement of the LPC OGV outer mount ring assembly.

Since the FAA issued AD 2020-12-01, the FAA determined that these inspections are also necessary for RRD Trent XWB-97 model turbofan engines. This AD was prompted by analysis by the manufacturer of the LPC OGV assembly and LPC OGV outer mount ring assembly which predicted that when the front engine mount is in the fail-safe condition, the most highly stressed LPC OGV assembly has a life that could be substantially less than one shop visit interval. This AD requires initial and repetitive inspections of the LPC OGV outer mount ring assembly and, depending on the results of the inspections, replacement of the LPC OGV outer mount ring assembly, as specified in a European Union Aviation Safety Agency (EASA) AD, which is incorporated by

reference (IBR). The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES:

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2022-1244; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

Material Incorporated by Reference:

- For EASA material that is proposed for IBR in this final rule, contact EASA, Konrad-Adenauer-Ufer 3, 50668 Cologne, Germany; phone: +49 221 8999 000; email: ADs@easa.europa.eu; website: easa.europa.eu. You may find this material on the EASA website at ad.easa.europa.eu.

- You may view this material at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110. It is also available in the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2022-1244.

FOR FURTHER INFORMATION CONTACT: Sungmo Cho, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7241; email: sungmo.d.cho@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2020-12-01, Amendment 39-21135 (85 FR 34959, June 8, 2020) (AD 2020-12-01). AD 2020-12-01 applied to certain RRD Trent XWB-75, Trent XWB-79, Trent XWB-79B, and Trent XWB-84 model turbofan engines. AD 2020-12-01 required initial and repetitive inspections of the LPC OGV outer mount ring assembly and, depending on the results of the inspections, possible replacement of the OGV outer mount ring assembly. The FAA issued AD 2020-12-01 to prevent failure of the front engine mount support structure.

The NPRM published in the *Federal Register* on September 30, 2022 (87 FR 59347). The NPRM was prompted by EASA AD 2022-0129, dated June 30, 2022, issued by EASA, which is the Technical Agent for the Member States of the European Union (EASA AD 2022-0129) (referred to after this as “the MCAI”). The MCAI superseded EASA AD 2019-0234, dated September 19, 2019 (EASA AD 2019-0234). EASA AD 2019-0234 specified that operators perform repetitive inspections (on-wing or in-shop) of the OGV outer mount ring assembly lug fillet area in accordance with RRD Alert Non-Modification Service Bulletin (NMSB) Trent XWB 72-AK188, Initial Issue, dated August 13, 2019. The manufacturer subsequently revised the NMSB and determined that the inspections of the LPC OGV outer mount ring assembly are also necessary for RRD Trent XWB-97 model turbofan engines. In addition, manufacturer analysis indicated that the on-wing inspections, previously specified in RRD NMSB Trent XWB 72-AK188, original issue, dated August 13, 2019, could be discontinued, and

the interval of the in-shop inspection could coincide with a qualified shop visit, as outlined in RRD NMSB Trent XWB 72-AK188, Revision 3, dated May 9, 2022. As a result, EASA issued EASA AD 2022-0129 to discontinue the on-wing inspections, allow the in-shop inspection interval to be adjusted, and expand the applicability to include Trent XWB-97 model turbofan engines. You may examine issued EASA AD 2022-0129 in the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2022-1244.

In the NPRM, the FAA proposed to require initial and repetitive inspections of the LPC OGV outer mount ring assembly and, depending on the results of the inspections, replacement of the LPC OGV outer mount ring assembly, as specified in EASA AD 2022-0129. The FAA is issuing this AD to prevent failure of the front engine mount support structure.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from three commenters. The commenters were Air Line Pilots Association, International (ALPA), Delta Air Lines, Inc, (DAL), and Rolls-Royce, plc.. The following presents the comments received on the NPRM and the FAA's response to each comment.

Support for the NPRM

ALPA supported the NPRM without change.

Request to Remove Proposed Paragraph (j), Special Flight Permit

DAL requested that the FAA remove the Special Flight Permit paragraph, as proposed in the NPRM. DAL explained that EASA AD 2022-0129 specifies that all inspections and corrective actions occur during a qualified engine shop visit. DAL stated that an affected engine cannot be returned to service until all inspections and corrective actions are complied with and, therefore, the special flight permit prohibition proposed in the NPRM is not necessary.

The FAA agrees and has omitted the proposed Special Flight Permit paragraph from this final rule.

Request to Revise References to LPC OGV Outer Mount Ring Assembly

Rolls-Royce, plc. commented that both the Background section and paragraph (e), Unsafe Condition, of the proposed AD refer to “the most highly stressed LPC OGV outer mount ring assembly.” The commenter stated that both paragraphs should be revised to instead refer to “the most highly stressed LPC Outlet Guide Vane” in order to correct the description of the affected part that has a life that could be substantially less than one shop visit.

In response to this comment, the FAA partially agrees with the request to correct the description of the affected part, and has updated this final rule by changing “the most highly stressed LPC OGV outer mount ring assembly” to “the most highly stressed LPC OGV assembly” in paragraph (e), Unsafe Condition, and in the preamble.

Request to Clarify Service Bulletin for Trent XWB-97 Model Turbofan Engines

Rolls-Royce, plc. noted that the proposed AD references RRD Alert NMSB Trent XWB 72-AK188, Revision 3, dated May 9, 2022, when referring to inspections of the LPC OGV on Trent XWB-97 model turbofan engines. However, Rolls-Royce, plc. stated inspections of the LPC OGV on Trent XWB-97 model turbofan engines are covered in RRD Alert NMSB Trent XWB 72-AK583, Initial Issue, dated May 9, 2022.

The FAA agrees and has updated the Actions Since AD 2020-12-01 Was Issued paragraph of the preamble to reference RRD Alert NMSB Trent XWB 72-AK583, Initial Issue, dated May 9, 2022, when referencing inspections of the LPC OGV for Trent XWB-97 model turbofan engines. The FAA also added RRD Alert NMSB Trent XWB 72-AK583, Initial Issue, dated May 9, 2022, to the Other Related Service Information paragraph of the preamble.

Conclusion

These products have been approved by the aviation authority of another country and are approved for operation in the United States. Pursuant to the FAA's bilateral agreement with this State of Design Authority, it has notified the FAA of the unsafe condition described in the MCAI referenced above. The FAA reviewed the relevant data, considered the comments received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, and any other changes described previously, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

Related Service Information Under 1 CFR Part 51

The FAA reviewed EASA AD 2022-0129. This EASA AD specifies instructions for performing fluorescent penetrant inspections (FPIs) of the LPC OGV outer mount ring assembly.

This material is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Other Related Service Information

The FAA reviewed RRD Alert NMSB Trent XWB 72-AK188, Revision 3, dated May 9, 2022, and RRD Alert NMSB Trent XWB 72-AK583, Initial Issue, dated May 9, 2022. This service information specifies procedures for performing FPIs of the LPC OGV outer mount ring assembly.

Costs of Compliance

The FAA estimates that this AD affects 60 engines installed on airplanes of U.S. Registry.

The FAA estimates the following costs to comply with this AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
FPI the LPC OGV outer mount ring assembly	3 work-hours x \$85 per hour = \$255	\$0	\$255	\$15,300

The FAA estimates the following costs to do any necessary repairs or replacements that would be required based on the results of the inspection. The agency has no way of determining the number of aircraft that might need these repairs or replacements:

On-condition costs

Action	Labor Cost	Parts Cost	Cost per product
Repair LPC OGV outer mount ring assembly	.5 work-hours x \$85 per hour = \$42.50	\$0	\$42.50
Replace the LPC OGV outer mount ring assembly	8 work-hours x \$85 per hour = \$680	\$2,418,121	\$2,418,801
Replace the OGV outer mount ring only	8 work-hours x \$85 per hour = \$680	\$894,319	\$894,999

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority

because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by:

- a. Removing Airworthiness Directive 2020-12-01, Amendment 39-21135

(85 FR 34959, June 8, 2020); and

- b. Adding the following new airworthiness directive:

2023-04-14 Rolls-Royce Deutschland Ltd & Co KG (Type Certificate previously held by Rolls Royce plc): Amendment 39-22361; Docket No. FAA-2022-1244; Project Identifier MCAI-2022-00872-E.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2020-12-01, Amendment 39-21135 (85 FR 34959, June 8, 2020) (AD 2020-12-01).

(c) Applicability

This AD applies to Rolls-Royce Deutschland Ltd. & Co KG (RRD) Trent XWB-75, Trent XWB-79, Trent XWB-79B, Trent XWB-84, and Trent XWB-97 model turbofan engines as identified in European Union Aviation Safety Agency (EASA) AD 2022-0129, dated June 30, 2022. (EASA AD 2022-0129).

(d) Subject

Joint Aircraft Service Component (JASC) Code 7120, Engine Mount Sector.

(e) Unsafe Condition

This AD was prompted by analysis by the manufacturer of the low-pressure compressor (LPC) outlet guide vane (OGV) assembly and LPC OGV outer mount ring assembly. The analysis predicted that when the front engine mount is in the fail-safe condition, the most highly stressed LPC OGV assembly has a life that could be substantially less than one shop visit interval. The FAA is issuing this AD to prevent failure of the front engine mount support structure. The unsafe condition, if not addressed, could result in engine separation, reduced control of the airplane, and loss of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

Perform all required actions within the compliance times specified in, and in accordance with, EASA AD 2022-0129.

(h) Exceptions to EASA AD 2022-0129

(1) Where EASA AD 2022-0129 requires compliance from its effective date, this AD requires using the effective date of this AD.

(2) This AD does not adopt the Remarks paragraph of EASA AD 2022-0129.

(i) No Reporting Requirement

Although the service information referenced in EASA AD 2022-0129 specifies to submit certain information to the manufacturer, this AD does not include that requirement.

(j) Alternative Methods of Compliance (AMOCs)

The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in § 39.19. In accordance with § 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (k)(1) of this AD or email to: ANE-AD-AMOC@faa.gov. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(k) Additional Information

(1) For more information about this AD, contact Sungmo Cho, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7241; email: sungmo.d.cho@faa.gov.

(2) For service information identified in this AD that is not incorporated by reference, contact Rolls-Royce plc, Corporate Communications, P.O. Box 31, Derby, DE24 8BJ, United Kingdom; phone: +44 (0)1332 242424; fax: +44 (0)1332 249936; website: rolls-royce.com/contact-us.aspx. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

(I) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless this AD specifies otherwise.

(i) European Union Aviation Safety Agency AD 2022-0129, dated June 30, 2022.

(ii) [Reserved]

(3) For EASA AD 2022-0129, contact EASA, Konrad-Adenauer-Ufer 3, 50668 Cologne, Germany; phone: +49 221 8999 000; email: ADs@easa.europa.eu. You may find this EASA AD on the EASA website at ad.easa.europa.eu.

(4) You may view this material at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

(5) You may view this material that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email fr.inspection@nara.gov, or go to: www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued on February 17, 2023.

Christina Underwood, Acting Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

[FR Doc. 2023-04860 Filed: 3/9/2023 8:45 am; Publication Date: 3/10/2023]